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T-9

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,151	06/30/2003	Chandrakant D. Patel	200208212-1	8160

7590 12/22/2006
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

CHEN, TSE W

ART UNIT	PAPER NUMBER
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2116

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/608,151	Applicant(s) PATEL ET AL.	
	Examiner Tse Chen	Art Unit 2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-14,35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-14,35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 2, 5-6, 8-11, 14, 35, 37-39 are rejected under 35 U.S.C. 102(a) as being anticipated by Chaiken et al., US Publication 20020183869, hereinafter Chaiken.

3. In re claims 1 and 35, Chaiken discloses a cooling system for cooling computer systems [0002, 0027; e.g., node of systems], the cooling system comprising:

- Temperature sensors [20] operable to detect heat dissipated by the computer systems [0023].
- Cooling components distributing cooling fluid [air conditioning] to the computer systems [0031].
- At least one circuit [21] operable to compare an aggregate [0027, 0032; applicable to node of systems] amount of heat [ambient temperature] being dissipated by the computer systems to a threshold [before exceeding operating range] associated with a maximum cooling capacity of the cooling system [0031; operating range based on maximum cooling capacity planned to justify spending without excess], wherein the cooling system is designed to cool the computer systems based on a nominal heat dissipation [marginal temperature condition within operating range] of the computer systems, and the nominal

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heat dissipation is less than a maximum heat dissipation of the computer systems [outside operating range] [0023-24, 0031].

- Wherein the at least one circuit is operable to place at least one electrical component [element] of the computer systems in a lower-power state [e.g., lower voltage] to reduce heat dissipation in response to the amount of heat being dissipated by the computer systems exceeding the threshold [0023-25].

4. As to claim 2, Chaiken discloses, wherein the lower-power state comprises reducing power consumption [lower voltage] of one or more electrical components in the computer systems [0025].

5. As to claim 5, Chaiken discloses, wherein the maximum cooling capacity of the cooling system is based on an aggregate of the nominal heat dissipation of each of the computer systems [0031; adequate cooling capacity for all the subscribers].

6. As to claim 6, Chaiken discloses, wherein the cooling system is designed to cool electrical components of the computer systems based on a nominal heat dissipation [marginal temperature condition] of the electrical components, the nominal heat dissipation being less than a maximum heat dissipation [boundary of operating range] of the electrical components [0023-24].

7. As to claims 8 and 37, Chaiken discloses, wherein the at least one circuit controls the cooling components to distribute cooling fluid as a function of the heat dissipated by the computer systems [0031; e.g., air conditioner set at 70 degrees would distribute more cooling fluid as temperature rises to maintain 70 degrees].

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8. As to claim 9, Chaiken discloses, wherein an amount of cooling fluid distributed to at least one of the computer systems is substantially proportional to an amount of heat being dissipated by the at least one of the computer systems [0029, 0031; air conditioning cools proportional to heat].

9. As to claim 10, Chaiken discloses, wherein the cooling components comprise one or more of a valve, valve controller, blower, pump, louvers, actuated cells, and cooling plates [0031; air conditioning inherently requires valves].

10. As to claim 11, Chaiken discloses, wherein the cooling fluid comprises at least one of air [air conditioning] and liquid coolant [0031].

11. As to claims 14 and 39, Chaiken discloses, wherein the at least one circuit controls the cooling components to distribute cooling fluid as a function of workload [processing load] for the computer systems [0036].

12. As to claim 38, Chaiken discloses, comprising means for placing the at least one component in a higher-power state in response to excess cooling resources being available for cooling the computer systems [0029; full system with excess cooling provided by new air conditioning].

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaiken as applied to claim 6 above, and further in view of Davidson, US Patent 6946363.

15. Chaiken taught each and every limitation as discussed above. Chaiken did not discuss the details of determining the nominal heat dissipation.

16. Davidson discloses a cooling system wherein the nominal heat dissipation is based on an average heat dissipation [power related to heat] of the electrical components [col.4, ll.19-27].

17. It would have been obvious to one of ordinary skill in the art, having the teachings of Davidson and Chaiken before him at the time the invention was made, to modify the cooling system taught by Chaiken to include the nominal heat dissipation taught by Davidson, as using an average value for nominal determination is very well known in the art and suitable for use in the cooling system of Chaiken. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to prevent localized hot spots from damaging components [Davidson: col.4, ll.19-27].

18. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaiken as applied to claim 8 above, and further in view of Bradshaw, US Patent 4386733.

19. Chaiken taught each and every limitation as discussed above. Chaiken did not disclose explicitly controlling at least one of valves and louvers to control air flow or controlling at least one of valves and a pump to distribute coolant for cooling the computer systems.

20. In re claim 12, Bradshaw discloses a cooling system wherein the at least one circuit is operable to control at least one of valves [156] and louvers to control air flow for cooling the computer systems based on the amount of heat being dissipated [col.9, l.55 – col.10, l.22].

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21. In re claim 13, Bradshaw discloses, wherein the at least one circuit is operable to control at least one of valves [160] and a pump to distribute coolant for cooling the computer systems based on the amount of heat being dissipated [col.9, 1.55 – col.10, 1.22].

22. It would have been obvious to one of ordinary skill in the art, having the teachings of Bradshaw and Chaiken before him at the time the invention was made, to modify the cooling system taught by Chaiken to include the explicit well known teachings of air conditioning operation taught by Bradshaw, as adjusting an air conditioning valve to control heat is very well known [analogous to opening a window wider to let more air in for coolness during summer] and suitable for use in the cooling system [i.e., air conditioning] of Chaiken. One of ordinary skill in the art would have been motivated to make such a combination as it provides a very well known way to control air flow/coolant in a cooling system [Bradshaw: col.9, 1.55 – col.10, 1.22].

Response to Arguments

23. Applicant's arguments filed November 30, 2006 have been fully considered but they are not persuasive.

24. Applicant argues that “there is no disclosure in Chaiken that teaches a cooling system designed based on a nominal heat dissipation of the computer systems”. Examiner disagrees and submits that a full reading of Chaiken would reveal that the cooling system comprises of a controller [e.g., cooling by slowing down components] and an air conditioner [e.g., cooling by cooling fluid], where the system’s operation is based on a nominal heat dissipation [0023-24; operating range] utilizing the two elements.

25. Applicant argues that “threshold in Chaiken is not associated with a maximum cooling capacity of a cooling system designed for nominal heat dissipation”. Examiner disagrees and

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submits that a full reading of Chaiken would reveal that Chaiken teaches operating the computer systems within a range that does not exceed the maximum cooling capacity [0029, 0031].

26. As such, Applicant's arguments are deemed not persuasive and the rejections are respectfully maintained.

Conclusion

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (571) 272-3672. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on (571) 272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tse Chen
December 17, 2006


REHANA PERVEEN
SUPERVISORY PATENT EXAMINER
12/20/06